

Presentation to IEST: WG012

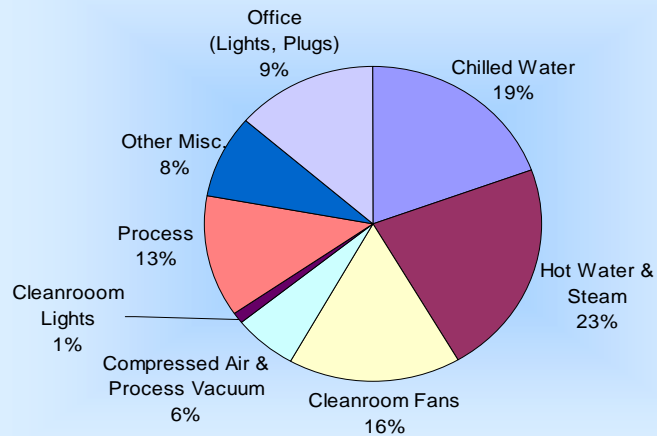
Energy Efficiency in Cleanrooms and Minienvironment



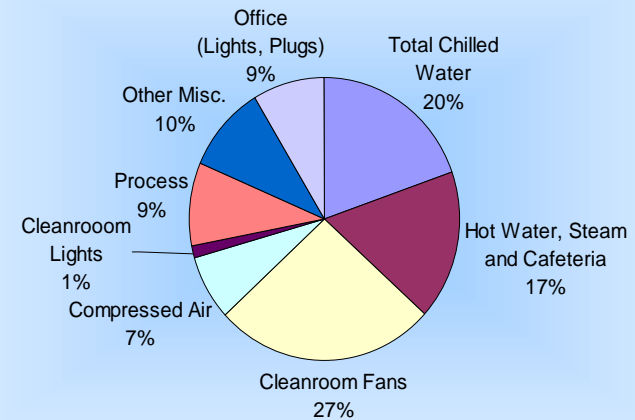
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April 27, 2004

Cleanroom Energy Benchmarking

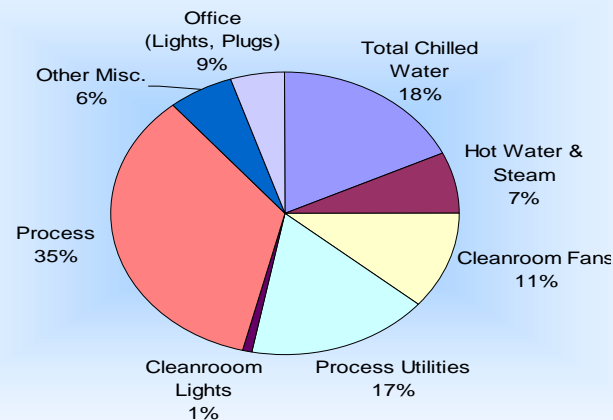
Facility 1



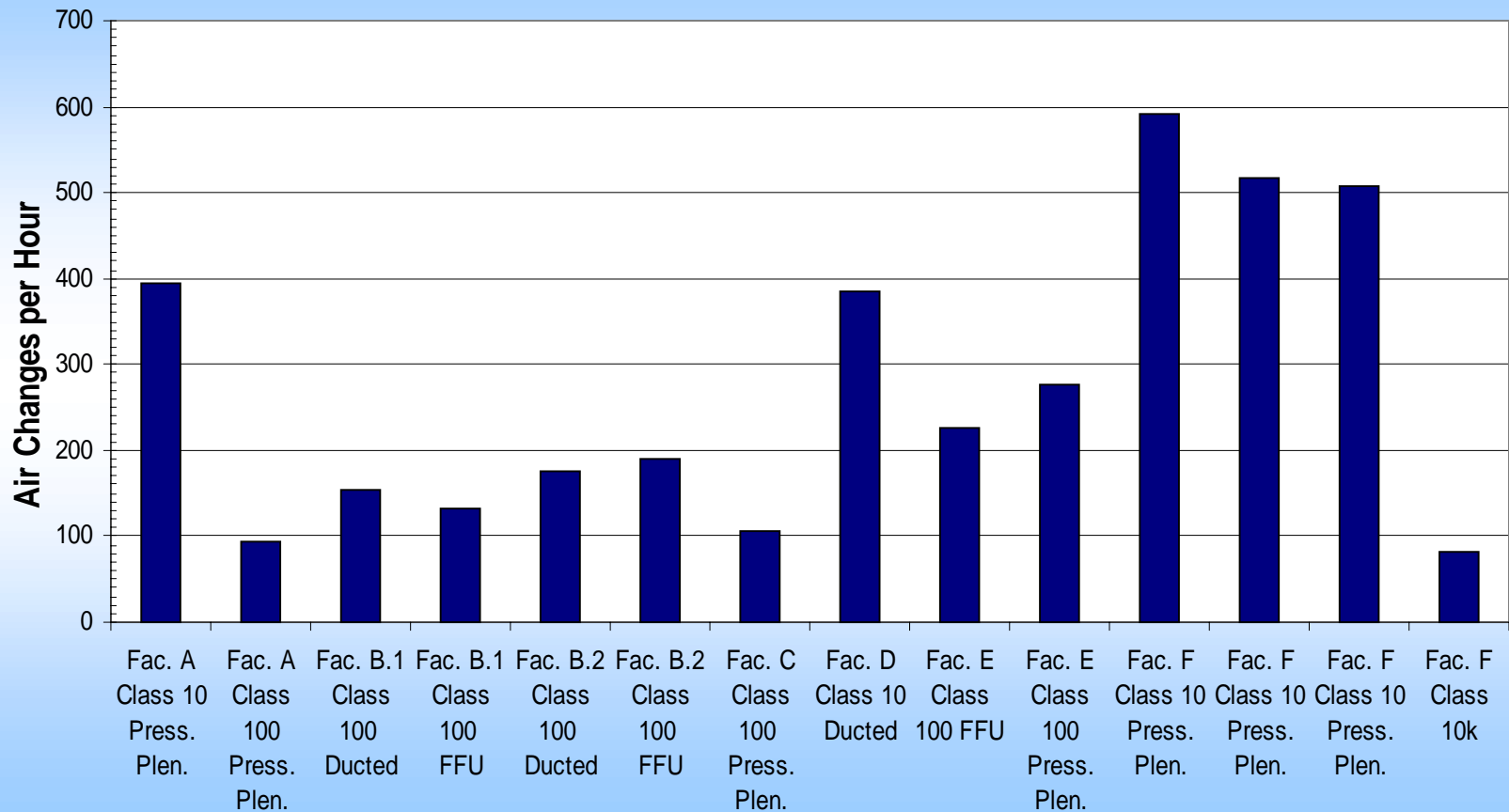
Facility 2



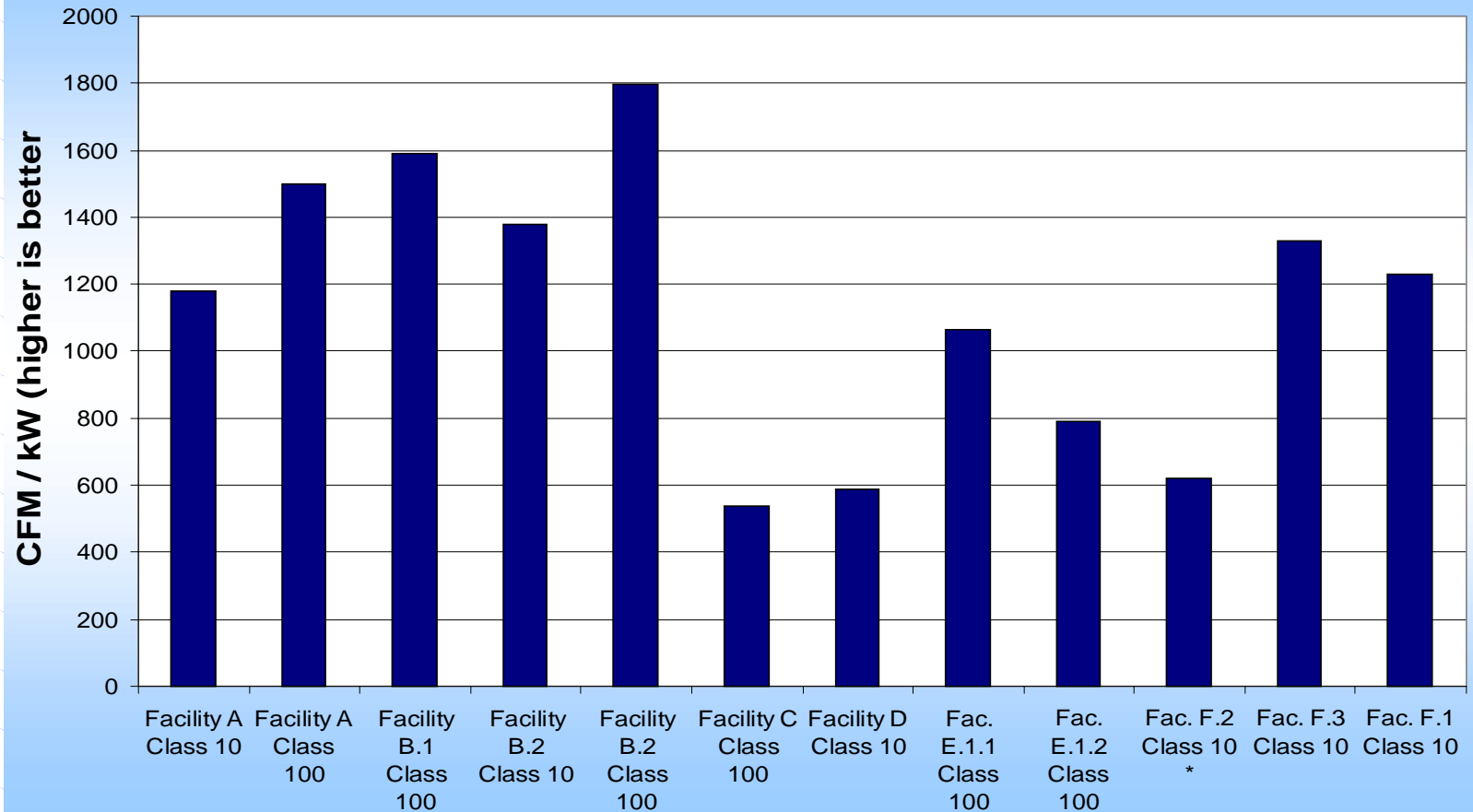
Facility 3



Air-change Rates



Make-up Air System Efficiency



Minienvironment Investigation

- ◆ Examine efficiency opportunity in selected minienvironment(s)
- ◆ Partner with Asyst
- ◆ Collaborate with Sematech
- ◆ Develop strategies to improve efficiency

Minienvironment Investigation

- ◆ Identify opportunities to improve overall facility energy efficiency
- ◆ A field-study site is being sought
- ◆ A demonstration in operating facility will be proposed to the CA Energy Commission

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Demand Controlled Filtration

- ◆ Pilot study in LBNL cleanroom - completed
- ◆ Workshop being planned to review the concept with industry
- ◆ Alternate methods of recirculation setback investigated
- ◆ Demonstration in an operating industry cleanroom